A NEW PERSPECTIVE OF THE TWIN PRIME CONJECTURE

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"Innovation is not the product of logical thought, even though the final product is tied to a logical structure."
---------- Albert Einstein

The *twin prime conjecture* [1] is a beautiful open problem in *Number Theory* about primes, a pair of primes are called *twin primes* such as {11,13}, {29,31} or {101,103} of the form {p, p+2}, and the *twin prime conjecture states* that there exist infinitely many primes p such that p+2 is also prime [1].

Since p and p+2 all is odd primes in every pair of *twin primes* of the form {p, p+2}, thus, there must be $2|p+1$ and $p+1\geq 4$, assume $p+1=2n$, $n\in N$; then there be $2n\geq 4$, $n\geq 2$, $p=2n-1$, $p+2=2n+1$,and $(2n+1)=(2n-1)+2$, therefore, a pair of *twin primes* of the form {p, p+2} is also a pair of primes of the form {2n−1,2n+1}. At the same time, the *twin prime conjecture states* is equivalently converted to that there exist infinitely many evens 2n such that $2n\pm 1$ all be odd primes.

Essentially, either way of expression, both are expressing the same proposition that ***there are infinitely many twin primes.***

References

[1] M. B. Nathanson, *Elementary Methods in Number Theory*, Beijing, Springer-Verlag, 2003. Section II, Divisors and Primes in Multiplicative Number Theory, 8--Prime Numbers, 8.4, notes.3, 287